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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference AA 932		FOR FURTHER ACTION See Form PCT/IPEA/416	
International application No. PCT/FI 2002/000617	International filing date (day/month/year) 08.07.2002	Priority date (day/month/year)	
International Patent Classification (IPC) or national classification and IPC B63B 35/44			
Applicant Törmälä Pasi et al			

- This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
- This REPORT consists of a total of 3 sheets, including this cover sheet.
- This report is also accompanied by ANNEXES, comprising:
 - ☒ (sent to the applicant and to the International Bureau) a total of 4 sheets, as follows:
 - ☒ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
 - ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
 - ☐ (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

- This report contains indications relating to the following items:

<input checked="" type="checkbox"/>	Box No. I	Basis of the report
<input type="checkbox"/>	Box No. II	Priority
<input type="checkbox"/>	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
<input type="checkbox"/>	Box No. IV	Lack of unity of invention
<input checked="" type="checkbox"/>	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
<input type="checkbox"/>	Box No. VI	Certain documents cited
<input type="checkbox"/>	Box No. VII	Certain defects in the international application
<input type="checkbox"/>	Box No. VIII	Certain observations on the international application

Date of submission of the demand 08.12.2003	Date of completion of this report 26.03.2004
Name and mailing address of the IPEA/SE Patent- och registreringsverket Box 5055 S-102 42 STOCKHOLM Facsimile No. +46 8 667 72 88	Authorized officer Carl Fröderberg/EK Telephone No. +46 8 782 25 00

Form PCT/IPEA/409 (cover sheet) (January 2004)

Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

☒ This report is based on a translation from the original language into the following language English, which is the language of a translation furnished for the purposes of:

- ☐ international search (under Rules 12.3 and 23.1(b))
☒ publication of the international application (under Rule 12.4)
☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the elements of the international application, this report is based on (*replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report*):

☐ the international application as originally filed/furnished

☒ the description:

pages 1-13 as originally filed/furnished

pages* _____ received by this Authority on _____

pages* _____ received by this Authority on _____

☒ the claims:

pages _____ as originally filed/furnished

pages* _____ as amended (together with any statement) under Article 19

pages* 14-17 received by this Authority on 08.12.2003

pages* _____ received by this Authority on _____

☒ the drawings:

pages 1-7 as originally filed/furnished

pages* _____ received by this Authority on _____

pages* _____ received by this Authority on _____

☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

☐ the description, pages _____

☐ the claims, Nos. _____

☐ the drawings, sheets/figs _____

☐ the sequence listing (*specify*): _____

☐ any table(s) related to the sequence listing (*specify*): _____

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

☐ the description, pages _____

☐ the claims, Nos. _____

☐ the drawings, sheets/figs _____

☐ the sequence listing (*specify*): _____

☐ any table(s) related to the sequence listing (*specify*): _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**1. Statement**

Novelty (N)	Claims	<u>1-8</u>	YES
	Claims		NO
Inventive step (IS)	Claims	<u>1-8</u>	YES
	Claims		NO
Industrial applicability (IA)	Claims	<u>1-8</u>	YES
	Claims		NO

2. Citations and explanations (Rule 70.7)**Documents cited in the International Search Report:**

D1: US 2969648 A
D2: DE 3302865 A1
D3: US 2967400 A
D4: US 3727414 A
D5: US 4427319 A

The invention relates to a method for operating a maritime unit and a maritime unit provided with a frame structure and at least three legs where the legs can be driven up and down, and be locked in position by a disk brake system. Each leg is provided with one or more brake flanges, extending longitudinally of the leg and the frame structure is provided with at least two brake shoe elements being set one below the other. The invention has been restricted by the amended first and fifth claims filed with the letter of 2003-03-12. Particularly by adding to claim 1 and 5 that the frame structure is provided with at least two brake shoe elements being set one below the other. This makes it unobvious to a person skilled in the art to lock the movable legs in D1 with a disc brake system as the one in D2 and to provide that system with two brake shoe elements, being set one below the other, in such a way that the claimed invention according to the amended first and fifth claim is obtained.

The cited documents represent the general state of the art and the invention defined in amended claims 1- 8 is not disclosed by any of these documents.

Accordingly, the invention defined in the amended claims 1- 8 is novel and is considered to involve an inventive step. The invention is industrially applicable.

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Claims:

1. A method for operating a maritime unit (1), intended for seafaring, such as marine traffic, offshore operations, and/or the like, said maritime unit comprising a frame structure (2), which is provided with at least power production and/or drive assemblies for the maritime unit, and at least three legs (3) operated by a jack mechanism (5), on the one hand for steadying the maritime unit (1) on the seabed by driving the legs (3) from a standby position, as required by the maritime unit's shipping condition, downwards in a direction substantially vertical with respect to the frame structure (2) and, on the other hand, for releasing the same from the seabed by driving the legs (3) upward relative to the frame structure, wherein the legs (3) of the maritime unit (1) are operated on a so-called disk brake principle for enabling a substantially stepless drive therefor, particularly regarding the manipulation and locking thereof, **characterized** in that the maritime unit has its leg (3) first of all actuated by means of a brake disk system (3a), which includes one or more brake flanges (3a') or the like, extending longitudinally of the leg and, on the other hand, by means of a brake system (5a), mounted in connection with the maritime unit's frame structure (2) and including one or more brake shoe elements (5a') or the like, operable in a vertical direction by means of a jack mechanism (5).

2. A method as set forth in claim 1, **characterized** in that the maritime unit has its leg (3) actuated by means of two or more brake shoe elements (5a'), which are set one below the other in a vertical direction and apply their action on a

single brake flange (3a') in a brake disk system (3a) included therein, and which are operated by means of separate jack mechanisms (5; 5'), such as hydraulic cylinders or the like.

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3. A method as set forth in claim 1 or 2, characterized in that the maritime unit has each of its legs (3) actuated in a substantially stepless manner by using alternately two or more brake shoe elements (5a') applying their action on a single brake flange (3a') in a brake disk system (3a), such that during an operation (x), involving one appropriately movable brake shoe element pressing into engagement with the brake flange (3a'), one or more movable brake shoe elements presently in a rest position are being returned (y) relative to the brake flange (3a') to a standby position in anticipation of the next operation.

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4. A method as set forth in any of the preceding claims 1-3, especially in the maritime unit (1) intended for offshore operations, such as a jack-up type oil drilling unit, a liftboat type offshore vessel, and/or the like, characterized in that the movement of each leg (3) is further controlled by means of one or more immobile brake shoe elements (5a'') mounted in connection with the frame structure (2).

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5. A method as set forth in any of the preceding claims 1-4, characterized in that the maritime unit (1) has one or more of its immobile and/or mobile brake shoe elements (5a', 5a'') first of all pressed in a standby condition in a self-powered, such as spring-biased manner, into engagement with the brake disk

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system (3a) and, on the other hand, has the same disengaged therefrom in an operating condition in response to an auxiliary force, such as by the action of a hydraulically operating release mechanism.

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6. A maritime unit (1) intended for seafaring, such as marine traffic, offshore operations, and/or the like, comprising a frame structure (2), which is provided with at least power production and/or drive assemblies for the maritime unit, and at least three legs (3) operated by a jack mechanism (5), on the one hand for steadying the maritime unit (1) on the seabed by driving the legs (3) from a standby position, as required by the maritime unit's shipping condition, downwards in a direction substantially vertical with respect to the frame structure (2) and, on the other hand, for releasing the same from the seabed by driving the legs (3) upward relative to the frame structure, wherein the legs (3) of the maritime unit (1) are adapted in a per se known manner to be operated on a so-called disk brake principle for enabling a substantially stepless drive therefor, particularly regarding the manipulation and locking thereof, **characterized** in that the maritime unit has its leg (3) provided with a brake disk system (3a), which includes one or more brake flanges (3a') or the like, extending longitudinally of the leg and, on the other hand, the maritime unit has its frame structure (2) provided with a brake system (5a), which includes one or more brake shoe elements (5a') or the like, operable in a vertical direction by means of a jack mechanism (5).

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7. A maritime unit as set forth in claim 6, **characterized** in that a single brake flange (3a') in

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5 the brake disk system (3a) associated with each leg of the maritime unit is provided with two or more brake shoe elements (5a'), which are set one below the other in a vertical direction and adapted to be operated by separate jack mechanisms (5; 5'), such as hydraulic cylinders or the like.

10 8. A maritime unit as set forth in claim 6 or 7, especially in the maritime unit (1) intended for offshore operations, such as in a jack-up type oil drilling unit, a liftboat type offshore vessel, and/or the like, **characterized** in that the brake shoe system (5a) includes one or more brake shoe elements (5a") fixed mounted on the frame structure (2) of the
15 maritime unit (1), especially